Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of		
Rapidly Deployable Aerial Telecommunications Architecture Capable Of Providing Immediate Communications To Disaster Areas	)	PS Docket No. 11-15

COMMENTS OF OCEUS NETWORKS CORPORATION

Oceus Networks Corporation ("Oceus Networks") submits these comments in response to the Federal Communications Commission's (FCC's) Notice of Inquiry on rapidly Deployable Aerial Communications Architecture (DACA).[1] Oceus Networks requests that the FCC consider its comments in the above-referenced docket in light of the continued need to assess these technologies to meet the urgent communications requirements of first responders, not only during the first 12-18 hours after a major natural disaster or terrorist attack, but also for geographies where a flexible communications solution could be deployed because fixed terrestrial solutions are impractical.

It has been nearly 11 years since the 9/11 attacks revealed inadequacies in the nation's public safety communications infrastructure. Since that time, the U.S. has struggled with addressing these gaps in meeting first responder needs in a nationwide manner. The Middle Class Tax Relief and Job Creation Act of 2012, through the creation of the First Responder

[1] Utilizing Rapidly Deployable Aerial Communications Architecture in Response to an Emergency, PS Docket No. 11-15, Public Notice (rel. May 24, 2012) ("DACA NOI")

Network Authority (FirstNet) to oversee the creation of a nationwide broadband infrastructure is a crucial step forward. However, nationwide coverage by the FirstNet network for the entire U.S. landmass is years out. Emergency communications will require multiple solutions to provide first responders the interoperable broadband communications needed to effectively respond to a disaster whether it is at the southern tip of Manhattan or in the Rocky Mountains, whether it be massive destruction caused by a man-made catalyst or a natural disaster.

Oceus Networks is a Reston, Va.-based provider of 4G, LTE-based wireless broadband solutions for Federal customers, including DoD, and is engaged in a trial demonstration to assess the technological capabilities of DACA assets during emergency or disaster scenarios. Assessing the suitability of DACA to meet these challenges through this DACA NOI comes at a critical time. Oceus Networks believes that DACA is ideally suited to meet certain public safety communication requirements and its use should be fully explored.

While some commenters view DACA as a technology of last resort, Oceus Networks believes that DACA platforms should be allowed to operate, subject to coordination and interference mitigation, in environments and circumstances where fixed terrestrial platforms are unavailable or inoperable. The FCC should support the use of DACA flexibly to allow first responder communications coordinators to employ it in a situational specific manner as the technology of choice to provide broadband communications.

Existing public safety technologies, as well as the new FirstNet LTE-based network, can be operated off of a DACA platform. During the first 24-72 hours of a disaster, DACA may be the only way to provide first responders on the ground with advanced broadband capabilities. A DACA-based platform may also be useful in geographically remote, austere locations in the U.S. In Afghanistan, the U.S. military has used DACA platforms in highly challenging environments.

The technology is proven and rules to allow its use domestically will enhance the ability of our nation's first responders to respond to events wherever and under whatever circumstances they may occur.

I. INTRODUCTION

Oceus Networks commends the Commission's efforts in exploring the desirable usages and likely impacts of aerial communications in disaster response. Oceus Networks supports the development and deployment of "accessible, reliable, resilient, cost-effective and secure" aerial platforms "which are capable of providing public safety and emergency response personnel the ability to communicate during the critical restoration period after a major disaster."[2] Aerial platforms offer emergency response coordinators a flexible, valuable tool to ensure that communications are available as soon as possible after an event that could topple terrestrial platforms. Oceus Networks also believes aerial platforms may be suitable to provide broadband wireless communications, especially in areas where a traditional build-out is impractical due to cost, low-population density, or geography.

Oceus Networks has developed a proven robust, compact 4G LTE solution providing secure high speed data communications, which, when joined with an airborne platform, creates a zone of coverage to restore critical communications in the first hours after a catastrophic event.[3] Oceus Networks has direct experience with deploying its 4G LTE solution on various platforms, including airborne systems. In working with several partners involved in DACA platform technology on a demonstration trial, Oceus Network is working to provide FCC with an up close

[2] Rapidly Deployable Aerial Telecommunications Architecture Capable of Providing Immediate Communications to Disaster Areas, PS Docket No. 11-15, Public Notice (rel. Jan. 28, 2012) ("Public Notice")

[3] Privately U.S.-owned and operated, Oceus Networks provides broadband solutions to governments and industry that enable them to deliver high-speed voice, video and data communications.

look at one DACA solution for delivering broadband.[4] These tests are scheduled to occur in late third quarter or the fourth quarter of this year. Oceus Networks is working diligently with others to obtain the necessary FCC, FAA, and other approvals as well as to develop a test plan to ensure that the tests offer the FCC information needed to fully assess DACA use.

Section II reflects Oceus Networks' recommendations and observations from its real-world experiences implementing broadband solutions on DACA platforms. The FCC sought comment on the ability of various DACA platforms "to support existing communication services and devices."[5] The FCC also sought comment on: (1) "[T]he availability and cost of DACA technology platforms", including operation costs and the advantages and disadvantages of each;[6] (2) Whether the Civil Air Patrol (CAP) provided a viable approach as suggested by Vincent Boyer, Chief, Emergency Communications and Regional Emergency Communications Coordinator, Federal Emergency Management Agency(FEMA) Region IV;[7] (3) The cost-effectiveness of various platforms and a comparison for each type;[8] and (4) Weight limitations of DACA platforms.[9]

Section III discusses Oceus Networks' views on signal propagation and interference mitigation techniques to resolve adjacent channel interference concerns. The FCC sought comment on DACA signal propagation and the "potential … for interference with commercial network services that may remain operational during disasters or for cell sites and systems" as

[4] Oceus Networks to Demonstrate Rapidly Deployable Networks for Public Safety, Press Release, May 24, 2012.

[5] *DACA NOI* at para 9.

[6] *DACA NOI* at para 11.

[7] *DACA NOI* at para 12.

[8] *DACA NOI* at para 12.

[9] *DACA NOI* at para 13.

well as several related questions.[10] The FCC solicited feedback on DACA coverage and specifically on "the ability of DACA technologies to provide geographic coverage over all geographies and terrains".

Section IV offers Oceus Networks' views related to coordination and frequency planning. The NOI solicited views on various frequency planning techniques including a "centralized database approach" that Comsearch suggested and other "existing frequency coordination models that could be adapted for DACA deployments."[11] In addition, the NOI asked about desirable frequency bands and technologies for DACA. [12]

Oceus Networks respectfully submits to the FCC the following comments for consideration.

II. DACA PLATFORM RECOMMENDATIONS

The basic challenge for providing coverage over a large distance is placement of the radio antenna at a high altitude. Several solutions have been proposed to provide aerial coverage for first responders. These include manned and unmanned platforms encompassing both low altitude and high altitude flight. Existing, manned aircraft have been proposed to provide high altitude coverage for communications. Large Unmanned Aerial Vehicles (UAV) bear a hidden cost for needed back office support staff that may be beyond the budgets of most public safety agencies. Smaller unmanned systems are less expensive to operate, but have weight restrictions that limit their ability to support the lift requirements for high capacity LTE broadband wireless equipment compatible with the new public safety network, FirstNet. Manned fixed wing aircraft

[10] *DACA NOI* at para 29.

[11] *DACA NOI* at para 25.

[12] *DACA NOI* at para 23.

can support broadband public safety communications with minimal retrofitting and offers cost advantages over other unmanned systems.

A. Manned Fixed Aircraft Ready To Support Broadband DACAs

Manned fixed wing aircraft, such as those provided by the Civil Air Patrol (CAP), provide an ideal lifting platform for broadband DACA solutions. Current communications solutions hosted on CAP aircraft utilize radio repeaters to provide voice communications to public safety users.[13] These systems have concentrated primarily on integrating with existing Land Mobile Radio (LMR) systems. Providing a high speed, high bandwidth solution is beyond the existing LMR systems' capabilities. However, it would be possible to retrofit existing CAP aircraft with small deployable cellular solutions, which would meet both voice and high-speed data requirements for public safety communications. Current state-of-the-art solutions would be able to integrate into the existing aircraft of the CAP fleet.

Augmenting the CAP fleet with mobile broadband capabilities provides connectivity from first responder to first responder on the ground as well as back to base operations. Communications back to the larger first responder network, FirstNet, would require additional connectivity, either through point to point (P2P) microwave radio or satellite links to complete the backhaul connection to the larger public safety network. Assuming backhaul connectivity is provided, a fully functional and robust DACA system with full interoperability to the new FirstNet network could be established using the existing CAP aircraft fleet.

[13] *See* Remarks and presentation of Vincent (Tex) Boyer, Chief, Emergency Communications and Regional Emergency Communications Coordinator, Federal Emergency Management Agency Region IV, (October 31, 2011) (*Boyer Remarks and Presentation*)

B. Unmanned Aircraft Should Be Considered As Smaller Cell Technology Advances

Unmanned aircraft fall into two flight categories: powered and unpowered. Large powered UAVs follow strict flight rules, requiring a large staff beyond the pilot to operate these aircraft. They possess cargo capacities approaching the CAP aircraft discussed above. Smaller powered UAVs follow visual flight rules. These smaller systems do not require a large support staff as their larger powered UAV counterparts do, thus reducing the cost to operate. However, these smaller systems tend to support payloads under 50 pounds which could limit these systems' ability to support a wireless broadband solution.

Unpowered aircraft such as tethered aerostats and un-tethered weather balloons provide interesting solutions to the antenna height problem. Operation of these solutions requires fewer resources (personnel and operating costs) than those required by the equivalent lifting capacity of a manned aircraft. These systems follow flight rules that require other aircraft in the airspace to navigate away from them. However, the cargo (lift) capacity is a limiting factor for these unpowered platforms. For example, the smallest weather balloon category allows for only a payload of 12 pounds. Larger balloons may lift many hundreds of pounds but follow more strict flight rules and are more restricted by weather conditions for launch.

In our experience with unmanned platforms in working with the U.S. military, weight or lift capacity considerations play a critical factor in determining their suitability to host a broadband DACA platform. Commercial macro base station radio components weigh in excess of 15 pounds. The addition of backhaul connectivity, power sources (i.e. batteries), and computing systems add significant weight to the overall DACA solution. It is not uncommon to

find network-in-a-box solutions, such as Oceus Networks' Xiphos™, weighing in excess of 45 pounds.

As we seek to further reduce the Size Weight and Power (SWAP) of these systems, small mini and pico radio systems may be attractive options. While mini and pico radio systems will not support as many concurrent users nor offer as large a coverage "bubble" as a macro system, use of these systems will significantly reduce the overall weight. The reduced power of these smaller systems may be offset by the reduced path loss inherent in an airborne (rather than terrestrial) deployment. Further, smaller supporting computer systems may be used in conjunction with these systems, which further reduces the overall weight and power drawn from the energy source. In general, smaller form factor systems will become available in the coming months as the FCC's exploration of DACA technology progresses and their availability may suggest reconsideration of certain powered and unpowered unmanned platforms.

III. USE OF CELLULAR SIGNAL PROPAGATION AND INTERFERENCE MITIGATION CAPABILITIES RESOLVES ADJACENT CHANNEL INTERFERENCE CONCERNS

A. Increased Height of DACA Platform Helps Mitigate Interference

Commercial carriers have a responsibility to their customers to provide reliable and robust networks. Carrier networks utilize fixed installations with known antenna locations to assure that their customers enjoy reliable coverage and seamless handover between cell sites. These systems are designed with a well known tolerance for interference. However, an effective DACA deployment imposes different considerations than a commercial carrier network deployment, in part because DACA solutions are deployed on moving platforms with antennas that greatly exceed the height of the highest commercial radios.

One advantage of a DACA system is in signal propagation. High altitude radio signal propagation will most closely resemble free space propagation models. While terrain shadows still occur, the amount of multipath experienced will be severely reduced. Signal energy penetrates top down rather than along the terrain profile. This geometry results in an advantaged propagation position.

In performing signal propagation analysis, the antenna height remains the key discriminator. Some commenters have recognized that DACA solutions could interfere with cellular carriers operations.[14] In commercial infrastructure, commercial carriers often share adjacent bands *on the same tower or cell site location*, which is referred to as co-location. DACA solutions will use altitudes greatly exceeding the height of commercial terrestrial infrastructure. Assuming a DACA operational height of 2000 feet or greater, it seems unlikely that a commercial carrier would receive any greater interference than already experienced by its network in commercial operation of co-located sites. This concern is resolved by operating on an adjacent band, using a compatible technology, and being positioned remotely from the commercial carriers.

B. Existing Commercial Wireless Techniques Can Be Used In DACA Solutions To Effectively Mitigate Adjacent Channel Interference and Co-Channel Interference At Cell Edges

Well-known mitigation techniques are available to mitigate adjacent channel interference and co-channel interference at cell edges.

Looking at the commercial market, clear solutions exist for co-location of several widely used wireless networking technologies including Global System for Mobile Communication

[14] See AT&T Comments in DACA Public Notice.

(GSM), Wide Band Code Division Multiple Access (WCDMA), High Speed Packet Access (HSPA), Code Division Multiple Access (CDMA), Evolution Data Optimized (EVDO), and Long Term Evolution (LTE). If these technologies can coexist within and among operators' networks, it is also reasonable to assume that DACA can leverage these same technologies and co-exist within adjacent commercial networks. Oceus Networks supports the adoption of LTE for DACA to provide the technology's promising evolutionary roadmap and its alignment with the mobile broadband direction of public safety and the FirstNet network.

As in co-located sites, carriers account for the in-band power received by transmitters operating in neighboring, adjacent frequencies. Cellular technology radios transmit mostly within their designated band. Carriers and wireless equipment manufacturers ensure devices comply with transmit masks specified by standards bodies and the transmit characteristics (i.e. service rules) specified by the FCC. Understanding how mobile and fixed sites operate and at what power levels to optimize battery and performance considerations, permits carriers to configure the devices and base stations on their wireless network to ensure high quality service to their customers. DACA systems, similarly, should be required by the FCC to operate within these same bounds so that DACA operators can use existing well-known solutions to assure co-existence between commercial and DACA systems.

Oceus Networks submits that leveraging the well-known characteristics of LTE and using devices that conform to the published standards permits operation of DACA systems where appropriate and where it best serves the national interest. From a technical perspective, DACA systems could operate on any defined LTE band. Fundamentally, operation on any LTE band becomes a matter of interference with tier 1 tenants in the band. Interference becomes the discriminating factor.

C. DACA Is Well-Suited For Public Safety Broadband Applications Remote Locations With Lower Population Densities

Much of the discussion in the DACA Public Notice has been around interference. Oceus Networks understands that limiting interference is always a primary consideration; however, the focus for proposed DACA uses should be on the probability of interference to other systems. The large landmass of the United States represents a challenge to complete coverage. Satellite broadband has limitations in speed, capacity, and cost. DACA technologies offer a good performance/cost trade-off where communications service needs to be augmented or used on an interim basis during an emergency.

Two recent natural disaster events, the fires in Colorado[15] and flooding over large areas of Virginia and Maryland[16], represent situations where DACA platforms would have been well-suited to provide primary and temporary communications. A DACA platform could aid first responders' working rescue efforts. During these events, the level of service remained low. If commercial service existed prior to the event, it was unlikely to have survived. Due to its remote location and the nature of the event, restoration of the terrestrial infrastructure was difficult until after the event. Some of the areas affected by the wildfire and flooding in these two examples would not support a terrestrial build-out due to low population density and remoteness of geographic locations. In these instances, a DACA platform could have provided the most economically and technically viable solution to meeting the communication requirements of firefighters and first responders.

[15] Shiff, Blair. Online. http://www.9news.com/dontmiss/275637/630/Wildfires-begin-to-diminish-across-Colorado, 9 News. 2012

[16] Somers, Meredith, et. al. Online. http://www.washingtontimes.com/news/2011/sep/8/rain-floods-roads-forces-evacuations-closes-town/, The Washington Times. 2011

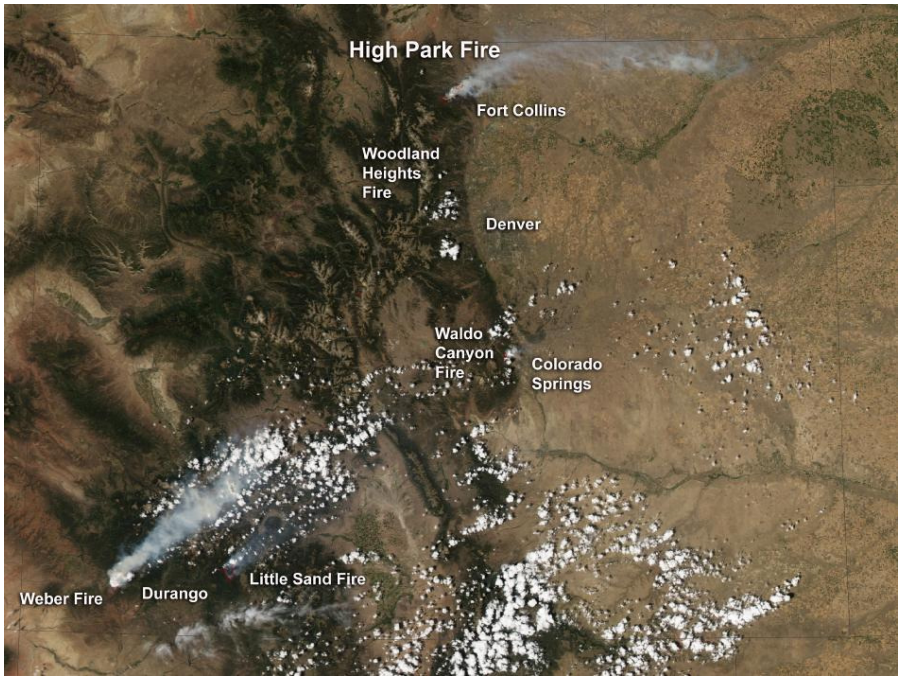

Figure 1 - Colorado Wildfires, 2012[17]

D. Commercial Networks May Not Always Be Reliable During An Emergency Event And DACA Solutions May Help Meet Critical Communications Gaps

Oceus Networks applauds the efforts by commercial carriers to restore service when it is lost and to augment network capacity during times of crisis. Frequently, these carriers' first response is to deploy Cells on Wheels (COW) or Cells on Light Trucks (COLT). During both the terrorist attacks on 9/11[18] and Hurricane Katrina[19], commercial carriers restored and augmented their service to enable public safety and consumer communications. CTIA's 9/11

[17] NASA Earth Observatory image by Jesse Allen using data obtained from the Land Atmosphere Near real-time Capability for EOS (LANCE).

[18] Condello, Kathryn. CTIA Report to NRIC, Network Impact and Recovery Efforts – September 11, 2001, CTIA. October 23, 2001

[19] Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, EB Docket No. 06-119, WC Docket No. 06-63 (rel. August 10, 2007) (PETITION FOR RECONSIDERATION CTIA – THE WIRELESS ASSOCIATION)

report[20] found that commercial networks shouldered a greatly increased network load during the event, supporting the community in service. However, the Public Safety Wireless Network (PSWN) Program's 9/11 Lessons Learned Report[21] found that commercial service will fail when a major incident occurs: "Major incidents, regardless of location, have shown that commercial service networks are not designed to handle the immense volume of calls generated at or near an incident scene. Responders found that the only reliable form of communications were their own, private LMR systems."[22] During the 2007 bridge collapse in Minnesota, news accounts[23] and later, the FCC, supported this conclusion that commercial networks may not be robust enough to handle increased communications during an emergency event.[24] This situation likely worsens the farther the incident occurs from the network core.

As a nation we must further endeavor to build new and more reliable services. Even after the disasters of 9/11 and the aftermath of Hurricane Katrina, recent history and studies[25] show that more work is needed on creating reliable backup communications systems for emergency events[26].

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[20] Condello. Ibid.

[21] Answering the Call, Communications Lessons Learned from the Pentagon Attack. PSWN. January 2002.

[22] PSWN. Ibid.

[23] Emergency Communications during the Minneapolis Bridge Disaster: A Technical Case Study by the Federal Communications Commission's Public Safety and Homeland Security Bureau's Communications Systems Analysis Division, FCC. November 13, 2008.

[24] Bridge Collapse Prompts Cell Overload. Online. http://www.npr.org/templates/story/story.php?storyId=12442243, NPR. August 2, 2007.

[25] Anon. NSTAC Report to the President on Emergency Communications and Interoperability. NSTAC. January 16, 2007.

[26] Martin, Kevin. Vulnerability Assessment and Feasibility of Creating a Back-Up Emergency Communications System. Federal Communications Commission. January 30, 2008.

IV. COORDINATION IMPORTANT TOOL FOR DACA PLATFORM USE

Oceus Networks sees coordination and planning as a key component when incorporating DACA platform deployment into an overall emergency communications plan. Lessons learned from previous examinations of communication performance during events such as the Katrina Report[27], provide many examples of how lack of planning and poor coordination result in catastrophic execution failures. A disaster response requires many different disciplines and perspectives to ensure effective communications. A complete disaster plan must include many pieces beyond the appropriate use of DACA platforms. The following sections highlight required coordination elements, including spectrum use and operating parameters for an LTE broadband DACA platform supporting an emergency incident.

A. Incident Coordination and Planning Elements

Establishing a broadband communication system in support of an incident requires planning. As part of establishing the use of an LTE broadband DACA platform solution in the overall communications plan, the incident communications officer (ICO) would need to establish:

- Incident location
- Area of operation
- Operational radio frequencies
- Potential flight plans

This information allows the ICO to calculate the effective area of impact. Assuming a clear metric to judge interference and a clear mechanism to quickly determine authorized

[27] A Failure of Initiative, Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina (2006) (Katrina Report).

representatives of license holders, the ICO can contact those parties with whom coordination would be required within the area of impact with confidence. Close communication between the authorized representative of the commercial licensee and the ICO can provide assurances that the DACA network and the commercial network are operating under well known behaviors and both parties can modify their networks to ensure continued operations. Key to these responses is the question – How can the ICO assure clear interference metrics and license holder determination? Rules that the FCC puts in place to facilitate DACA platforms should adopt standards supporting the needs of the communications officer.

B. Coordination Prior To Event Will Smooth DACA Platform Use

Oceus Networks strongly encourages that any public safety entity planning to use a DACA platform utilize existing processes established by the FCC, DHS, FEMA, and others to meet with existing license holders to agree to interference standards well before an incident occurs. This creates an environment where the ICO concentrates on solving communication issues at the scene rather than determining the physics of the solution on the fly. A predefined interference standard recognizes the investment made by existing license holders and that these networks support users of their own, including many public safety officials. The DACA platform would be employed during the time of the incident and the period of potential interference or performance degradation will be limited.

Oceus Networks supports Comsearch's proposal for the FCC to develop a centralized database that would include location-based license holder information. The FCC database would facilitate the creation of pre-established plans for incident communications and would provide an ICO with a reliable method to determine where primary license holder systems are located relative to the incident area. A communications plan can then leverage information regarding

communications systems available to the ICO in a certain location. These systems may operate on public safety spectrum or on commercial spectrum. Authorization can then be approved based on defined, acceptable power levels at the primary license holders' sites.

C. DACA solutions should be allowed to operate on public safety spectrum and on commercial bands when appropriate

Given that the nationwide 700 MHz public safety network is only now beginning the planning for its construction, we can reason that it will take many more years to complete construction of the network in rural communities. Commercial service is most profitable in urban environments and will remain the focus of commercial carriers. This provides the public safety community with an opportunity to build temporary communication systems for incidents in areas not served by fixed communications systems. In general, these areas will remain unserved for some time and modern broadband will only be enabled through the deployment of portable and aerial assets in a disaster response.

For DACA to be effective, the authorization must be quickly granted by the FCC or be pre-authorized to allow for operation. To leverage the full potential for DACA, the system must be allowed to operate when appropriate. It would be reasonable to ask: how should the Commission define appropriate? Appropriate authorization must consider the license holder: FirstNet or commercial.

Public safety users operating on FirstNet licensed bands should be within the domain of the ICO to authorize and manage. Leveraging the database of known sites and the defined level of acceptable interference, the ICO can plan the limits where LTE transmitters can be established. These transmitters would include terrestrial solutions as well as DACA. First on the

scene are likely to be DACA solutions. Soon after, portable solutions from public safety organizations will likely arrive on scene to augment the DACA communications capabilities.

For DACA, the ICO would also provide flight path guidance to assure that the system emits only over planned areas of operation and is kept within the interference tolerance guidelines. As discussed above, the ICO would be required to notify primary license holders in accordance with the recommendations in the last section. Oceus Networks recommends that the ICO be pre-authorized by the FCC to deploy public safety equipment for DACA and terrestrial systems under these conditions.

The second case is that of DACA operating on commercial bands. Once again, the ICO inspects the database of known sites and calculates an acceptable level of interference. The primary license holder is notified where the systems will be deployed and where they will be operating. As the commercial systems are made available, such as COWs or COLTs, public safety systems operating on these bands will be turned down or redeployed to resolve interference issues with these new positions. Oceus Networks recommends that the ICO be pre-authorized to deploy public safety equipment for DACA and terrestrial systems under these conditions.

The above discussion demonstrates the value that a location based authorization brings to public safety and homeland security. As a nation we must strive to more effectively leverage the spectrum within our borders and create opportunities to protect our communities.

V. CONCLUSION

Oceus Networks salutes the FCC's leadership in considering the use and role of DACA to help make U.S. public safety broadband communications more capable and available throughout

the nation. The technology exists today to meet the advanced communication requirements of our first responders. A favorable regulatory environment for the use of DACA will lead to integrated solutions that public safety communication coordinators can deploy economically and quickly to meet a wide range of needs. Neither public safety broadband networks nor their commercial counterparts cover 100% of the nation's landmass. Providing a means to provide access to broadband communications in remote areas or under situational specific circumstances through DACA will ensure that first responders can carry out their mission without additional hurdles.

Flexible use of DACA platforms, with proper coordination and interference mitigation, creates an effective component to supporting public safety. A DACA communications solution, augmented with on-the-ground communications, and a simplified frequency allocation for the Incident Command System (ICS) can offer a comprehensive communications paradigm.

From a national perspective the DACA solution should embody several goals:

- Deployable broadband communication capability within incidents in remote areas that is interoperable with other users.
- Procedures to enable the ICS to quickly determine what frequencies are in use and points of contact for coordination.
- Procedures to leverage spectrum efficiently without leaving fallow bands.
- Procedures defining a measureable, acceptable interference level.

DACA should be used where it is appropriate and best serves the national interest. Commercial deployment has demonstrated that LTE addresses many of the interference issues. Oceus Networks urges the Commission to quickly move forward to a Notice of Proposed Rule

Making (NPRM) to allow the use of DACA as needed, particularly within the framework of the FirstNet network architecture.

Respectfully submitted,

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